

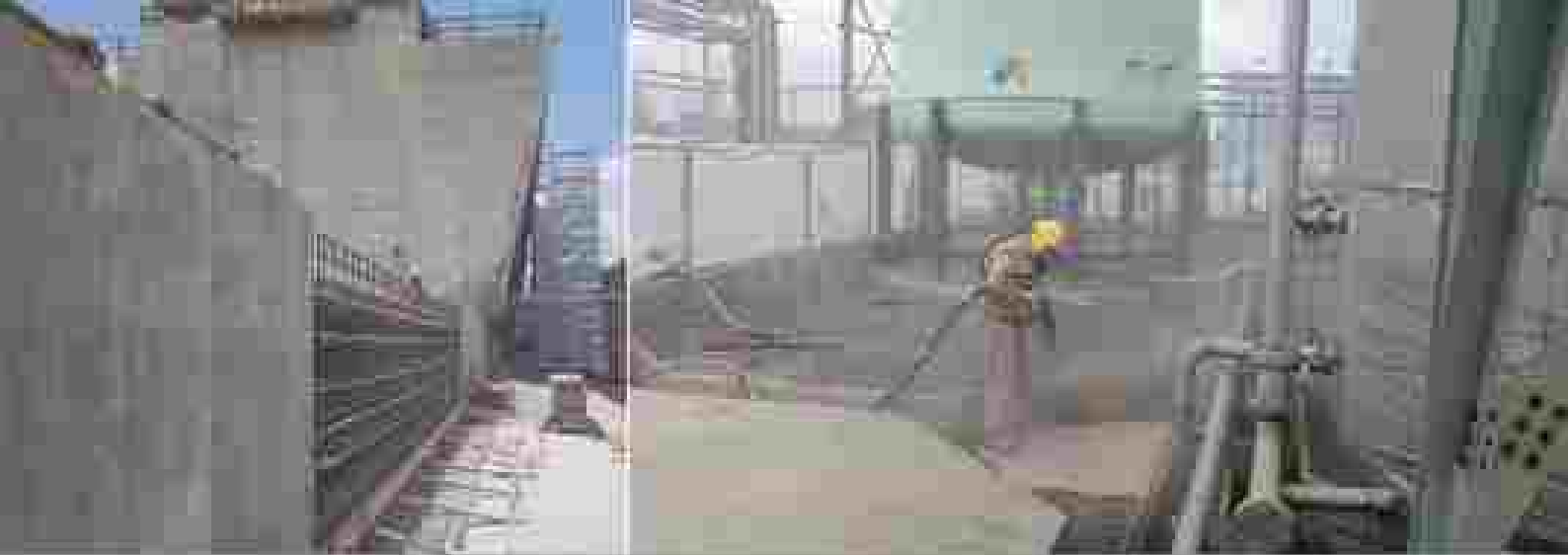
structural
TECHNOLOGIES

INVESTIGATE – DESIGN – BUILD
SOLUTIONS

ASSESSMENT • DESIGN • PRODUCTS • REPAIR & MAINTENANCE



www.structuraltec.me.com



Solutions for Industrial Facilities



CIVIL & STRUCTURAL ASSETS: THE FOUNDATION OF YOUR BUSINESS

Owners and operators of industrial and power generation facilities depend on the reliability of process equipment to sustain production and profitability. Most of this equipment is supported and protected by civil and structural infrastructure – typically reinforced concrete and structural steel.

While this infrastructure is known for its longevity – environmental factors such as chloride, high temperatures, corrosive chemicals, impact loads, vibration and other factors can severely impact their service life. Environmental effects and damage found in situations like this can impact the reliability and productivity of the assets that it is designed to support.



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EXPERIENCE:

WORLDWIDE LEADERS IN CIVIL / STRUCTURAL REPAIR & PROTECTION



Extending the Life of Civil / Structural Infrastructure

Infrastructure deterioration or damage may take years to manifest itself, but the damage is exponential – worsening as time progresses – and develops into more expensive and intensive repairs.

STRUCTURAL TECHNOLOGIES is recognized as the industry leader in developing innovative repair solutions to the most challenging industrial infrastructure problems. We offer a turnkey Investigate-Design-Build (IDB) approach that provides single-source responsibility.

Trusted by the Industry Leaders

Since 1978, STRUCTURAL TECHNOLOGIES companies have been serving industrial and power clients. In the last 10 years we have performed over 10,000 projects in the industrial / power markets totaling over a billion dollars in repair services. Our satisfied clients list includes every one of the top ten refineries, most major power companies and a wide range of chemical processing and other industrial clients. We have repaired and extended the service life of hundreds of sulfur pits, coolers, machinery foundations and process equipment foundations.

Our Team Offers:

- Condition Assessment & Design
- Specialty Repair Products
- Repair Design & Engineering
- Repair & Maintenance Services



Turnkey Services in Saudi Arabia

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PRODUCTS

- Structural Strengthening
- Post-Tensioning Repair
- Floor Rehabilitation
- Concrete Repair Materials
- Corrosion Control
- Moisture Control

STRUCTURAL TECHNOLOGIES is firmly committed to its mission of making structures stronger and last longer through our Middle East offices in Dubai, Abu Dhabi and Saudi Arabia. We develop and integrate products, engineering, repair and maintenance services. We provide these value-added solutions to owners, engineers and contractors. Our team is recognized as the industry leader based on our quality, client satisfaction, and efficient project delivery.

Products, Design Support & Installation

STRUCTURAL TECHNOLOGIES' product solutions strengthen, repair deterioration and protect structures to extend their life.

Our products are supported by an in-house staff of engineers and technical support specialists who provide project specific design for our products as well as cost and constructability consulting.

Repair & Maintenance Services

STRUCTURAL TECHNOLOGIES also provides a broad range of repair and maintenance services for civil and structural infrastructure projects, regardless of whether our products are part of the repair solution. Our repair and maintenance teams carefully coordinate and plan each project to ensure that it is completed safely, promptly, and within budget requirements.

Condition Assessment & Design

STRUCTURAL TECHNOLOGIES' services are enhanced by our joint venture with SIMCO technologies that operates as SIMCO Middle East throughout the region.

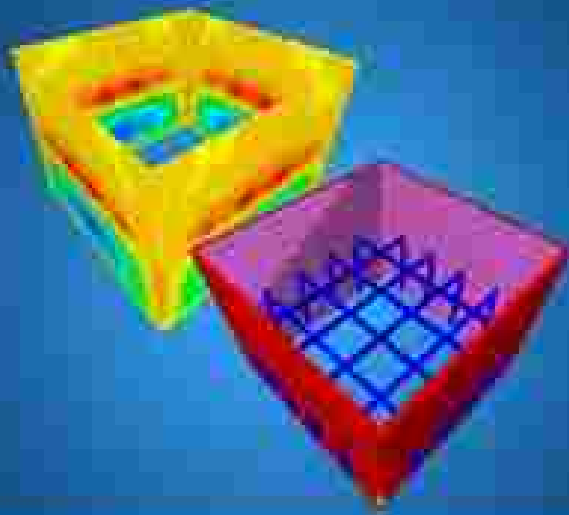
SIMCO Middle East provides highly specialized services including full condition assessment capabilities to identify the root cause of problems, as well as repair and protection design services to meet desired durability and service-life requirements. SIMCO Middle East's (matched material analysis techniques and its industry leading service-life modeling protocol, STADLUMSM) provide owners with solutions that they can depend on to extend the life of their infrastructure.



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SERVICES

- Condition Assessment
- Repair & Protection Design
- Service Life Modelling



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INVESTIGATE – DESIGN – BUILD: AN INTEGRATED APPROACH FOR INFRASTRUCTURE REPAIR & PROTECTION

STRUCTURAL TECHNOLOGIES offers a single source team approach to handle all aspects of the investigate – design – build repair process. Together, our integrated team approach provides clients with a seamless, hassle-free process and single source responsibility from initial investigation and design, through repair and warranty.

Benefits of the Design-Build Approach

- **Faster:** 37% faster from initial design through construction
- **Lower cost:** 10% lower cost and less cost growth
- **Higher quality:** Single source of accountability - no finger pointing during construction

INVESTIGATE



- Condition Assessment
- Field / Laboratory Testing
- Analysis & Reporting

DESIGN



- Solution Development
- Engineering
- Constructability Review

BUILD



- Planning & Scheduling
- Safety/Quality
- Project Execution

Using the investigate – design – build delivery model, SMCO Middle East performs and evaluates the findings of its condition assessment and uses advanced testing to determine the root cause and level of deterioration of an existing structure.

Working together, SMCO Middle East and STRUCTURAL TECHNOLOGIES develop the design solution that best meets customer's service life requirements and budget. Where appropriate, the team integrates proven input and protection products from STRUCTURAL TECHNOLOGIES. In finalizing design solutions, SMCO Middle East calls upon the construction expertise of STRUCTURAL TECHNOLOGIES for constructability and cost review, ensuring clients get the best value and a solution that truly fits their needs.

The repair design solution is implemented by STRUCTURAL TECHNOLOGIES including the expert installation of our engineered product solutions.



Condition Assessment & Analysis

SIMCO Middle East, a Structural Technologies joint venture partner, offers comprehensive condition assessment services and service-life modelling protocols for existing infrastructure evaluation. Our methodologies are applicable to a variety of structures exposed to aggressive environments (chlorides, below grade water intrusion, high temperatures, chemical attacks, etc.).

By incorporating the capabilities of STRUCTURAL TECHNOLOGIES' contracting teams and their experience working in industrial and power facilities with SIMCO ME and our team provides alternative solutions – informed by constructability analyses to optimize repair, lower costs and ensure proper phasing, safety and schedule. This collaboration also allows us to offer conceptual budget estimates at an early stage before design solutions are fully developed.

SIMCO MIDDLE EAST OFFERS THREE LEVELS OF ASSESSMENT SERVICES:

	Observation Report	Condition Survey	Condition Assessment
Report Summary	Comprehensive visual appraisal (for detection the observed problem areas)	Documentation of the problem areas that quantifies the location and degree of the visible defects and conditions	Analysis of collected data, documentation of current conditions, extent of damage (if any), root cause analysis, and conceptual repair options with associated order of magnitude repair treatments
Observed Deterioration	✓	✓	✓
Deterioration Quantities		✓	✓
Data & Lab Analysis			✓
Root Cause Analysis			✓

CONDITION ASSESSMENT REPORTING

When SIMCO Middle East performs a full condition assessment, typical reporting includes:

- Investigation summary
- Laboratory summary
- Data analysis
- Root cause determination



Plant-Wide Condition Management System (PCMS™)

Our Plant-Wide Condition Management System (PCMS™) is an approach to evaluate civil and structural assets throughout a plant. This process is used to identify deterioration trends and prioritize repair and maintenance programs for all infrastructure evaluated. The goal is to take a proactive approach towards infrastructure repair and maintenance that involves prioritizing repairs based on customer defined parameters.

The PCMS™ System can be tailored to a wide range of key infrastructure. The approach can be used to evaluate infrastructure relating to different unit types or a specific type of infrastructure throughout a plant or fleet. Examples of applications include:

- Plant-wide fireproofing for insurance programs
- Plant-wide rotating equipment foundations
- Fleet-wide cooling tower structures

A holistic, proactive approach, PCMS™ allows clients to effectively budget and plan for maintenance and repairs throughout a facility or a fleet of facilities.



CONDITION OBSERVATION WALKTHROUGH

We also offer clients our Condition Observation Walkthrough - an initial evaluation and visual observation of a facility's civil and structural assets to help determine the need for a Plant-wide Condition Management System (PCMS™) or to identify structures or assets that may require a full condition assessment or immediate repairs.

Following the walkthrough, our experienced Subject Matter Experts will present on the following:

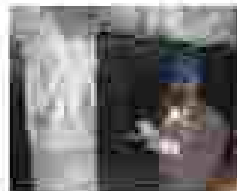
- Overall observations
- Areas in need of further investigation
- Areas in need of repair



PCMSTM THE PROCESS

1) FIELD EVALUATION

Once the structures to be part of the evaluation are identified in a preliminary walkthrough, our investigation team performs an efficient, yet comprehensive on-site analysis. Through data collection and mappings and sometimes limited material sampling, we document the current condition of assets for analysis.



2) ANALYSIS

Our team of experts analyze the data gathered from the field and any additional testing performed. Based on the analysis, each asset is categorized according to the client's risk classifications.



3) FINAL REPORT

The key deliverable of a PCMSTM is a detailed report and database that prioritizes repair and maintenance needs. While each report is tailored for specific client needs, a PCMSTM report typically provides:

- Quantification of assets found in satisfactory condition
- Location & identification of assets with diminished serviceability/durability
- Location & identification of assets with hazardous conditions





Products & Specialized Solutions

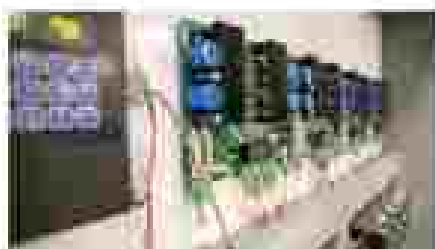
PRODUCTS FOR INDUSTRIAL FACILITIES

STRUCTURAL TECHNOLOGIES offers engineered products and systems to make civil and structural infrastructures stronger and last longer. Our product solutions repair deterioration, strengthen and protect structures to extend their life.



CONCRETE REPAIR

- Sarcos WR™ Sulphate Resistant Mortar
- Sarcos RC™ Rapid Cure Mortar
- Sarcos Concrete Mix™



CORROSION CONTROL

- Flacm TechCP™ Improved Cathodic Protection
- Marine Galvane Cathodic Protection
- ElectroTechCP™ EZ Anodic Galvane Cathodic Protection System



PIPE REHABILITATION

- V Wrap™ CPB® Composite
- Chemical Resistant External Composite Wrap
- Heat Resistant External Composite Wrap

OTHER STRUCTURAL TECHNOLOGIES PRODUCTS:





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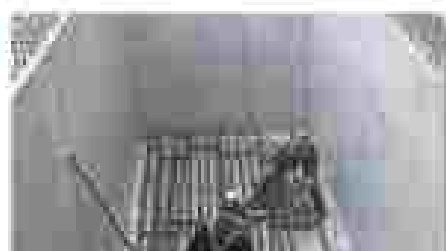
TECHNOLOGY-DRIVEN SYSTEMS FOR STRUCTURES IN INDUSTRIAL FACILITIES

STRUCTURAL TECHNOLOGIES and SIMCO Middle East have developed specialized solutions for the repair and protection of critical structures found in industrial facilities, including:



COOLING TOWERS

- Savers™ Cooling Tower Piping Repair & Protection
- ElectroTech CP™ Improved Cathodic Protection
- EZ Anode Systems



SULFUR PITS

- Sulfur Acid™ Sulfur Resistant Concrete Restoration Material
- Triton Sulfur™ Durability Liner™ System
- Triton Precast Sulfur Pit Roof™ System



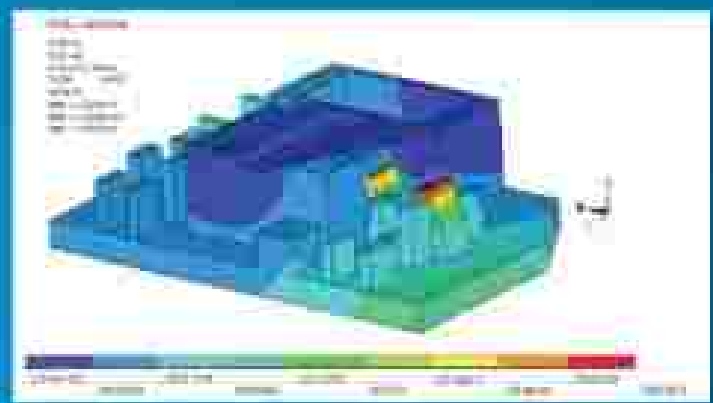
DYNAMIC EQUIPMENT FOUNDATIONS

- Tensar Concrete Repair Materials™
- PolyGrid® Polymer Equipment Foundations
- Foundation Vibration Analysis & Control Repair Design

OTHER STRUCTURES & UNITS:

- Delayed Curing Units
- Alkylation Units
- Hoppers, Columns & Slits
- Tanks, Silos & Containers
- Secondary Containers
- Docks & Piers
- Precast Piping
- Pipe Racks & Supports
- Water Treatment

Our design services are comprehensive, integrating analysis, repair design and construction planning to develop solutions that best meet our customers' needs.



Finite Element Analysis (FEA)

Repair Design & Engineering

AN INTEGRATED APPROACH TO REPAIR DESIGN

STRUCTURAL TECHNOLOGIES' staff of engineers and technical support specialists provide comprehensive design services for our products and repair solutions. In Saudi Arabia, we work in collaboration with our joint ventures company, SIMCO Middle East, to provide a turnkey approach to Investigate – Design – Build (IDB) projects.

Our Combined Expertise Make Sure That Our Design Solutions:

- Address the root cause of the problem
- Incorporate the structure's current condition through a professional condition assessment, and where applicable, service life analysis using SIMCO's durability model, STADLUM ME®
- Meet the owner's service life and budget requirements
- Comply with the performance design requirements
- Meet constructability requirements that can impact schedule and budget

Design Process for Repair & Maintenance:





Engineered Repair Design



Construction Engineering & CMDC

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WHAT MAKES US UNIQUE?

Local Turnkey Investigation - Design - Build Services

The partnership and combined expertise of Saudi Arabia based Contec, SIMCO Middle East and STRUCTURAL TECHNOLOGIES, provides clients with local resources in the Saudi Arabia. This way we can provide our proven IDB approach with a single source, responsive IDB team that combines international expertise with local resources.



Extensive Industry Experience

STRUCTURAL TECHNOLOGIES has extensive experience in the refining and industrial markets, providing investigate - design - build repair solutions for civil and structural infrastructure. We have provided our design, products and construction expertise to the world's largest refining and industrial clients, including:

- JMC
- Chevron
- Ince Midco
- Mowlem
- SPTC
- SABIC
- OHTO
- Formosa
- Mitsui
- Saudi Aramco
- Kipac
- Dow
- Indylprosa
- Petro Energy
- Shell
- JGC
- DuPont
- Rockwell Automation
- Polysar AG
- Tubacoy
- Chlorcon
- Urethane Chemical
- Tyndall Global
- PCC Industries
- Valire



Repair & Maintenance Services



Specialty Repair & Maintenance Services

- Concrete Repair
- Corrosion Control
- Pipe Repair & Strengthening
- Structural Strengthening
- Coatings, Lining & Waterproofing
- Maintenance Services
- Equipment Foundations
- Formwork
- Chimney Repair & Maintenance
- Blast Protection

STRUCTURAL TECHNOLOGIES is widely recognized as the industry leader in repair and maintenance of civil and structural infrastructure. With a reputation for quality, safety, client satisfaction, and efficient project delivery, STRUCTURAL TECHNOLOGIES has been called upon to implement the most challenging repairs in the industrial environment under the tight deadlines of shutdowns and emergency repair scenarios.

STRUCTURAL TECHNOLOGIES, working closely with clients, carefully coordinates and plans each project to minimize disruption to ongoing business operations. A commitment to Safety 24/7 helps to deliver quality craftsmanship while ensuring that every project is completed promptly, safely, and within budget requirements.

A Track Record & Commitment to Safety

Our industrial repair & maintenance business has one of the best safety records in the industry and has won many local and national awards. We have worked in some of the most demanding environments under stringent safety requirements from the slopes of Alaska to nuclear power plants.

Safety 24/7 is an integral part of a STRUCTURAL TECHNOLOGIES safety program and illustrates our commitment to our employees personal safety, as well as to the safety of friends, family, and co-workers. This commitment creates a culture of safety on our job sites, in our manufacturing facilities, offices, and in our private lives.

Frontline Safety puts into action the principles of Safety 24/7. It provides strategic initiatives to empower technicians, craftsmen, and mechanics to create and maintain a safe working environment. It also holds all levels of personnel accountable for their safety and the safety of others.



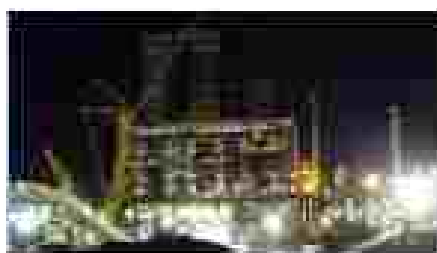
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HOW WE HELP OUR INDUSTRIAL CLIENTS



Maintenance Services

The skills and experience required to repair civil and structural infrastructure are decidedly different from those required to maintain mechanical and process equipment. STRUCTURAL TECHNOLOGIES is widely recognized as the industry leader in concrete and structural repair. Our maintenance programs are facilitated with local solution builders who are ready to help and experienced to handle standard maintenance projects as well as emergency repairs.



Turnaround Services

For turnarounds and shutdowns, STRUCTURAL TECHNOLOGIES offers award-winning, single source solutions for the assessment, design, planning and implementation of structural repairs. Our range of services, combined with our innovative design-build approach, makes STRUCTURAL TECHNOLOGIES the ideal partner for your facility's next planned turnaround.



Major Emergency Services

When an unplanned event such as a fire, structural failure or natural disaster causes damage to your plant, STRUCTURAL TECHNOLOGIES has rapid response teams to assist industrial clients, getting their facilities up and running again. With crews from 2 to 200+ trained in repair techniques can be dispatched from locations in the Middle East and the US. Skilled workers are available to work around the clock, 365 days a year, to safely complete projects under the tightest schedules and in the toughest working conditions.



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STRUCTURAL TECHNOLOGIES is a firm committed to its mission of making structures stronger and last longer through our Middle East offices in Saudi Arabia, Dubai and Abu Dhabi. We develop and integrate state-of-the-art proprietary products, provide engineering support, and deliver repair and maintenance services to offer value-added solutions to owners, engineers and contractors.

STRUCTURAL TECHNOLOGIES' services are enhanced by our joint ventures with SIMCO Technologies that operate as SIMCO Middle East throughout the region. SIMCO Middle East provides highly specialized services including full condition assessment capabilities to identify the root cause of problems, as well as repair and protection design services to meet desired durability and service-life requirements.

Products & Design Support

- Concrete Repair Materials
- Corrosion Control
- Moisture Control
- Equipment Foundations
- Fire Protection
- Strengthening
- Blast Protection
- Pipe Rehabilitation

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